

6-2015

Coordinated Population Forecast for Crook County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2015-2065

Portland State University. Population Research Center

Xiaomin Ruan
Portland State University

Risa Proehl
Portland State University

Jason R. Jurjevich
Portland State University, jjason@pdx.edu

Kevin Rancik
Portland State University

See next page for additional authors

Let us know how access to this document benefits you.

Follow this and additional works at: <http://pdxscholar.library.pdx.edu/opfp>

 Part of the [Urban Studies and Planning Commons](#)

Recommended Citation

Ruan, Xiaomin, R. Proehl, J. Jurjevich, K. Rancik, J. Kessi, C. Gorecki, and D. Tetrick, "Coordinated Population Forecast for Crook County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2015-2065." Portland State University Population Research Center, June 2015.

This Report is brought to you for free and open access. It has been accepted for inclusion in Oregon Population Forecast Program by an authorized administrator of PDXScholar. For more information, please contact pdxscholar@pdx.edu.

Authors

Portland State University. Population Research Center, Xiaomin Ruan, Risa Proehl, Jason R. Jurjevich, Kevin Rancik, Janai Kessi, Carson Gorecki, and David Tetrick

Coordinated Population Forecast



2015

Through

2065

Crook County

Urban Growth
Boundaries (UGB)
& Area Outside UGBs

**Coordinated Population Forecast for Crook County, its
Urban Growth Boundaries (UGB), and
Area Outside UGBs
2015-2065**

**Prepared by
Population Research Center
College of Urban and Public Affairs
Portland State University**

June, 2015

This project is funded by the State of Oregon through the Department of Land Conservation and Development (DLCD). The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

Project Staff:

Xiaomin Ruan, Population Forecast Program Coordinator

Risa S. Proehl, Population Estimates Program Manager

Jason R. Jurjevich, PhD. Assistant Director, Population Research Center

Kevin Rancik, GIS Analyst

Janai Kessi, Research Analyst

Carson Gorecki, Graduate Research Assistant

David Tetrick, Graduate Research Assistant

The Population Research Center and project staff wish to acknowledge and express gratitude for support from the Forecast Advisory Committee (DLCD), the hard work of our staff Deborah Loftus and Emily Renfrow, data reviewers, and many people who contributed to the development of these forecasts by answering questions, lending insight, providing data, or giving feedback.

How to Read this Report

This report should be read with reference to the documents listed below—downloadable on the Forecast Program website (<http://www.pdx.edu/prc/opfp>).

Specifically, the reader should refer to the following documents:

- *Methods and Data for Developing Coordinated Population Forecasts*—Provides a detailed description and discussion of the forecast methods employed. This document also describes the assumptions that feed into these methods and determine the forecast output.
- *Forecast Tables*—Provides complete tables of population forecast numbers by county and all sub-areas within each county for each five-year interval of the forecast period (i.e., 2015-2065). These tables are also located in [Appendix C](#) of this report.

Table of Contents

Executive Summary.....	6
Historical Trends	8
Population.....	8
Age Structure of the Population	9
Race and Ethnicity.....	10
Births	10
Deaths	12
Migration	12
Historical Trends in Components of Population Change	13
Assumptions for Future Population Change	15
Assumptions for the County and Larger Sub-Areas.....	15
Supporting Information and Specific Assumptions	16
Forecast Trends.....	17
Forecast Trends in Components of Population Change	18
Glossary of Key Terms.....	21
Appendix A: Supporting Information.....	22
Appendix B: Specific Assumptions	24
Appendix C: Detailed Population Forecast Results.....	25

Table of Figures

Figure 1. Crook County and Sub-Areas—Historical and Forecast Populations, and Average Annual Growth Rates (AAGR).....	7
Figure 2. Crook County—Total Population by Five-year Intervals (1975-2010 and 2010-2014).....	8
Figure 3. Crook County and Sub-areas—Total Population and Average Annual Growth Rate (AAGR) (2000 and 2010)	9
Figure 4. Crook County—Age Structure of the Population (2000 and 2010)	9
Figure 5. Crook County—Hispanic or Latino and Race (2000 and 2010).....	10
Figure 6. Crook County and Oregon—Total Fertility Rates (2000 and 2010)	10
Figure 7. Crook County—Age Specific Fertility Rate (2000 and 2010).....	11
Figure 8. Oregon—Age Specific Fertility Rate (2000 and 2010)	11
Figure 9. Crook County and Sub-Areas—Total Births (2000 and 2010).....	12
Figure 10. Crook County and Sub-Areas—Total Deaths (2000 and 2010).....	12
Figure 11. Crook County and Oregon—Five-year Migration Rates (2000-2010).....	13
Figure 12. Crook County—Components of Population Change (2000-2014).....	14
Figure 13. Crook County—Total Forecast Population by Five-year Intervals (2015-2065)	17
Figure 14. Crook County and Larger Sub-Areas—Forecast Population and AAGR.....	18
Figure 15. Crook County and Larger Sub-Areas—Share of Countywide Population Growth	18
Figure 16. Crook County—Age Structure of the Population (2015, 2035, and 2065)	19
Figure 17. Crook County—Components of Population Change, 2015-2065	20
Figure 22. Crook County—Population by Five-Year Age Group	25
Figure 23. Crook County's Sub-Areas—Total Population	26

Executive Summary

Historical

Different growth patterns occur in different parts of the County and these local trends within the Prineville UGB and the area outside the UGB collectively influence population growth rates for the county as a whole.

Crook County's total population has grown slowly since 2000; with average annual growth rates of less than one percent between 2000 and 2010 (Figure 1); however the area outside the Prineville UGB experienced more rapid population growth during the 2000s. Prineville, the only UGB, posted an average annual growth rate of 0.6 percent, while the area outside the UGB grew at an average annual rate of 1.2 percent during the 2000 to 2010 period.

Crook County experienced substantial swings in net migration throughout the last decade (2000 to 2010), as a result the countywide population growth rate also fluctuated. At the same time an aging population not only led to an increase in deaths, but also resulted in a smaller proportion of women in their childbearing years. This along with more women choosing to have fewer children and have them at older ages has led to a decline in the number of births. The growing number of deaths and shrinking number of births led to natural decrease—more deaths than births—beginning in 2011. While net in-migration and natural increase contributed to substantial population growth from 2005 to 2008, both of these numbers shrank during more recent years—leading to population decline between 2009 and 2012.

Forecast

Total population in Crook County as a whole as well as within its sub-areas will likely grow at a slightly faster pace in the first 20 years of the forecast period (2015 to 2035) relative to the last 30 years (Figure 1). The tapering of growth rates is largely driven by an expected aging population—a demographic trend which will lead to declining natural increase (births minus deaths). As natural increase declines, population growth will become increasingly reliant on net in-migration.

Even so, Crook County's total population is expected to increase by more than 2,700 over the next 20 years (2015-2035) and by more than 4,500 over the entire 50-year forecast period (2015-2065). The Prineville UGB is forecast to show slightly stronger population growth—relative to the 2000s— in the initial 20-year forecast period, but is expected to slow down substantially during the last 30 years. The area outside the UGB will likely grow at a steadier rate than Prineville throughout the forecast period.

Figure 1. Crook County and Sub-Areas—Historical and Forecast Populations, and Average Annual Growth Rates (AAGR)

	Historical			Forecast				
	2000	2010	AAGR (2000-2010)	2015	2035	2065	AAGR (2015-2035)	AAGR (2035-2065)
<i>Crook County</i>	19,182	20,978	0.9%	21,135	23,916	25,640	0.6%	0.2%
Prineville ¹	10,540	11,213	0.6%	11,256	12,845	13,383	0.7%	0.1%
Outside UGBs	8,642	9,765	1.2%	9,879	11,071	12,257	0.6%	0.3%

Sources: U.S. Census Bureau, 2000 and 2010 Censuses; Population Research Center (PRC)

¹ For simplicity the Prineville UGB is referred to by its primary city's name.

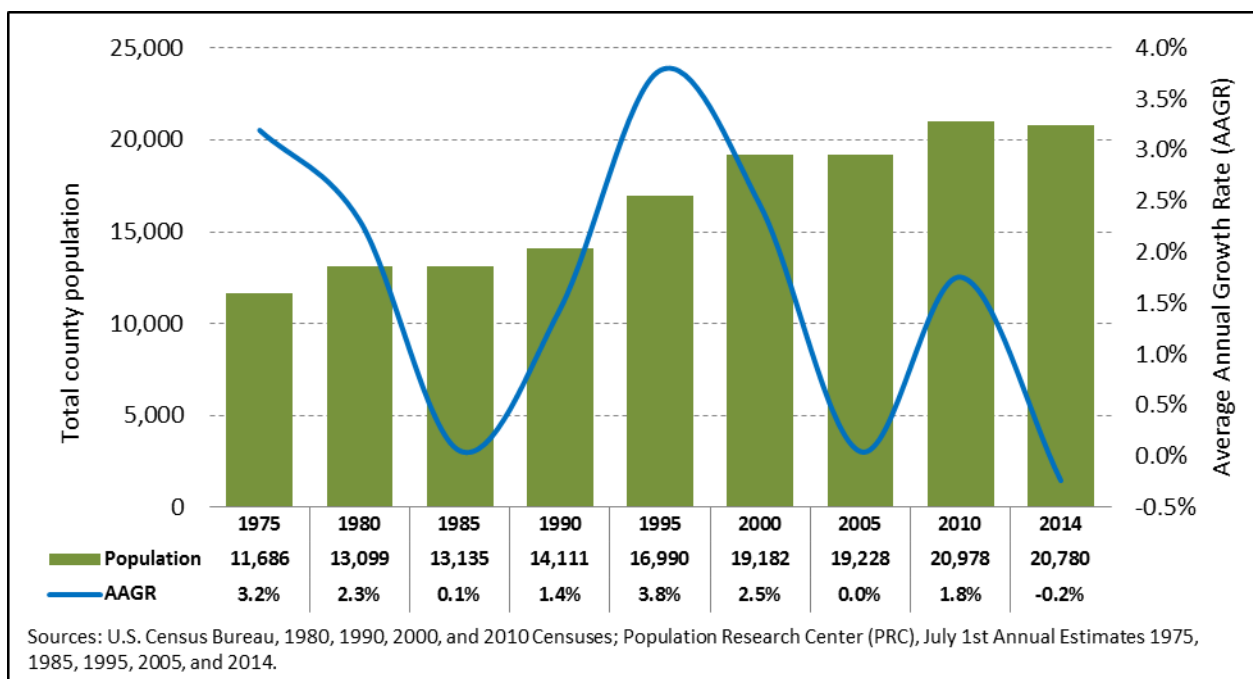
Historical Trends

Different growth patterns occur in different parts of the County. Each of Crook County’s sub-areas was examined for any significant demographic characteristics or changes in population or housing growth that might influence their individual forecasts. Factors that were analyzed include age composition of the population, ethnicity and race, births, deaths, and migration. It should be noted that population trends of individual sub-areas often differ from those of the county as a whole. However, in general, population growth rates for the county are collectively influenced by local trends within its sub-areas.

Population

Crook County’s total population grew by just under 80 percent between 1975 and 2014—from roughly 12,000 in 1975 to about 21,000 in 2014 (Figure 2). During this approximately 40-year period, the county realized the highest growth rates during the early 1990s, which coincided with a period of relative economic prosperity. During the early 1980s, challenging economic conditions, both nationally and within the county, yielded a sharp decline in population growth. During the early 2000s, challenging economic conditions, both nationally and within the county, yielded a sharp decline in population growth. Between 2000 and 2010, the county experienced positive population growth—averaging just under one percent per year. However in recent years growth rates were negative, leading to population decline between 2010 and 2014.

Figure 2. Crook County—Total Population by Five-year Intervals (1975-2010 and 2010-2014)



Crook County’s population change is the sum of its parts, in this sense countywide population change is the combined population growth or decline within each sub-area. During the 2000s, Crook County’s average annual population growth rate stood at a little less than one percent. Between 2000 and 2010

the Prineville UGB grew more slowly, on average, than the area outside its UGB and as a result it declined as a share of total countywide population (Figure 3).

Figure 3. Crook County and Sub-areas—Total Population and Average Annual Growth Rate (AAGR) (2000 and 2010)

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
<i>Crook County</i>	19,182	20,978	0.9%	100.0%	100.0%
Prineville ¹	10,540	11,213	0.6%	54.9%	53.5%
Outside UGBs	8,642	9,765	1.2%	45.1%	46.5%

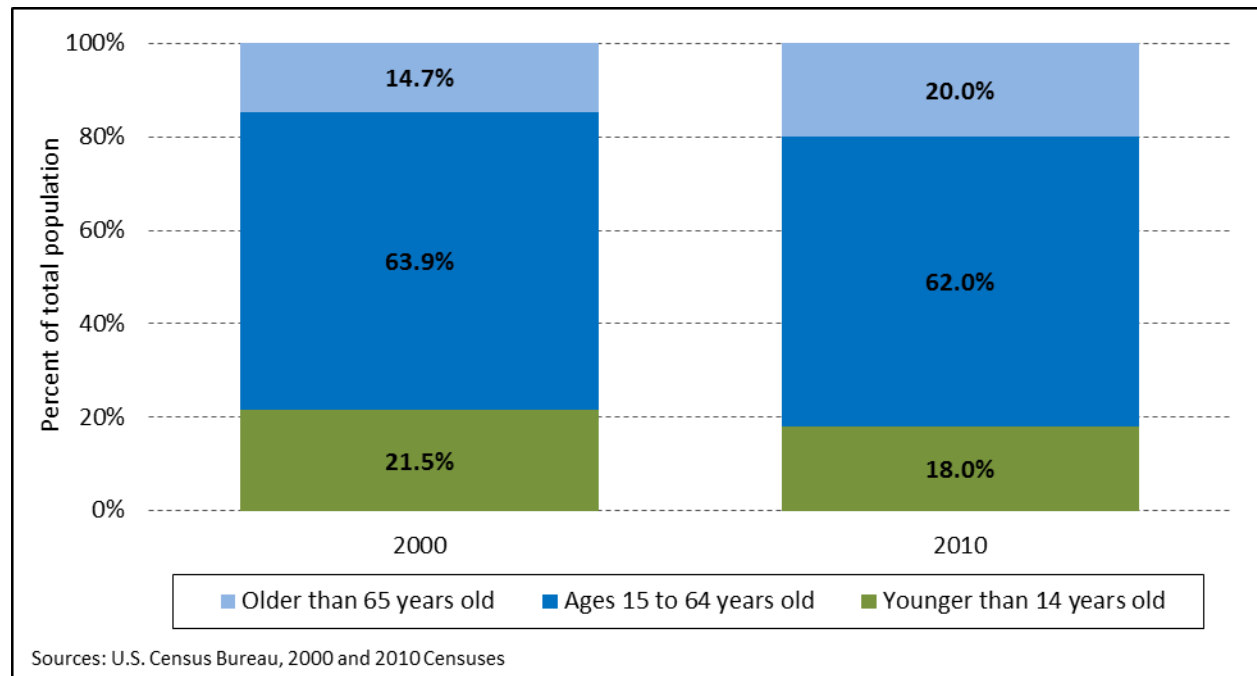
Sources: U.S. Census Bureau, 2000 and 2010 Censuses

¹ For simplicity the Prineville UGB is referred to by its primary city's name.

Age Structure of the Population

Similar to most areas across Oregon, Crook County’s population is aging. An aging population significantly influences the number of deaths, but also yields a smaller proportion of women in their childbearing years, which may result in a decline in births. This demographic trend underlies some of the population change that has occurred in recent years. From 2000 to 2010 the proportion of county population 65 or older grew from about 15 percent to 20 percent (Figure 4). Further underscoring the countywide trend in aging—the median age went from about 39 in 2000 to 46 in 2010.¹

Figure 4. Crook County—Age Structure of the Population (2000 and 2010)



¹ Median age is sourced from the U.S. Census Bureau’s 2000 and 2010 Censuses.

Race and Ethnicity

While the statewide population is aging, another demographic shift is occurring across Oregon—minority populations are growing as a share of total population. A growing minority population affects both the number of births and average household size. The Hispanic population within Crook County increased substantially from 2000 to 2010 (Figure 5), while the White, non-Hispanic population increased by a smaller amount (in relative terms) over the same time period. This increase in the Hispanic population and other minority populations brings with it several implications for future population change. First, both nationally and at the state level, fertility rates among Hispanic and minority women have tended to be higher than among White, non-Hispanic women. Second, Hispanic and minority households tend to be larger relative to White, non-Hispanic households.

Figure 5. Crook County—Hispanic or Latino and Race (2000 and 2010)

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
	Count	Percentage	Count	Percentage		
<i>Total population</i>	19,182	100.0%	20,978	100.0%	1,796	9.4%
Hispanic or Latino	1,082	5.6%	1,463	7.0%	381	35.2%
Not Hispanic or Latino	18,100	94.4%	19,515	93.0%	1,415	7.8%
White alone	17,532	91.4%	18,758	89.4%	1,226	7.0%
Black or African American alone	6	0.0%	30	0.1%	24	400.0%
American Indian and Alaska Native alone	235	1.2%	273	1.3%	38	16.2%
Asian alone	82	0.4%	96	0.5%	14	17.1%
Native Hawaiian and Other Pacific Islander alone	6	0.0%	11	0.1%	5	83.3%
Some Other Race alone	12	0.1%	12	0.1%	0	0.0%
Two or More Races	227	1.2%	335	1.6%	108	47.6%

Sources: U.S. Census Bureau, 2000 and 2010 Censuses

Births

Historical fertility rates for Crook County mirror trends similar to Oregon; while total fertility rates decreased for both the county and state from 2000 to 2010 (Figure 6), fertility for older women marginally increased in both Crook County and Oregon (Figure 7 and Figure 8). As Figure 7 demonstrates, fertility rates for younger women in Crook County are lower in 2010 compared to earlier decades, and women are choosing to have children at older ages. These statistics largely mirror statewide changes, with total fertility in the county and state remaining below [replacement fertility](#).

Figure 6. Crook County and Oregon—Total Fertility Rates (2000 and 2010)

Total Fertility Rate (TFR)		
	2000	2010
Crook County	1.98	1.79
Oregon	1.98	1.79

Sources: U.S. Census Bureau, 2000 and 2010 Censuses.

Oregon Health Authority, Center for Health Statistics.

Calculations by Population Research Center (PRC).

Figure 7. Crook County—Age Specific Fertility Rate (2000 and 2010)

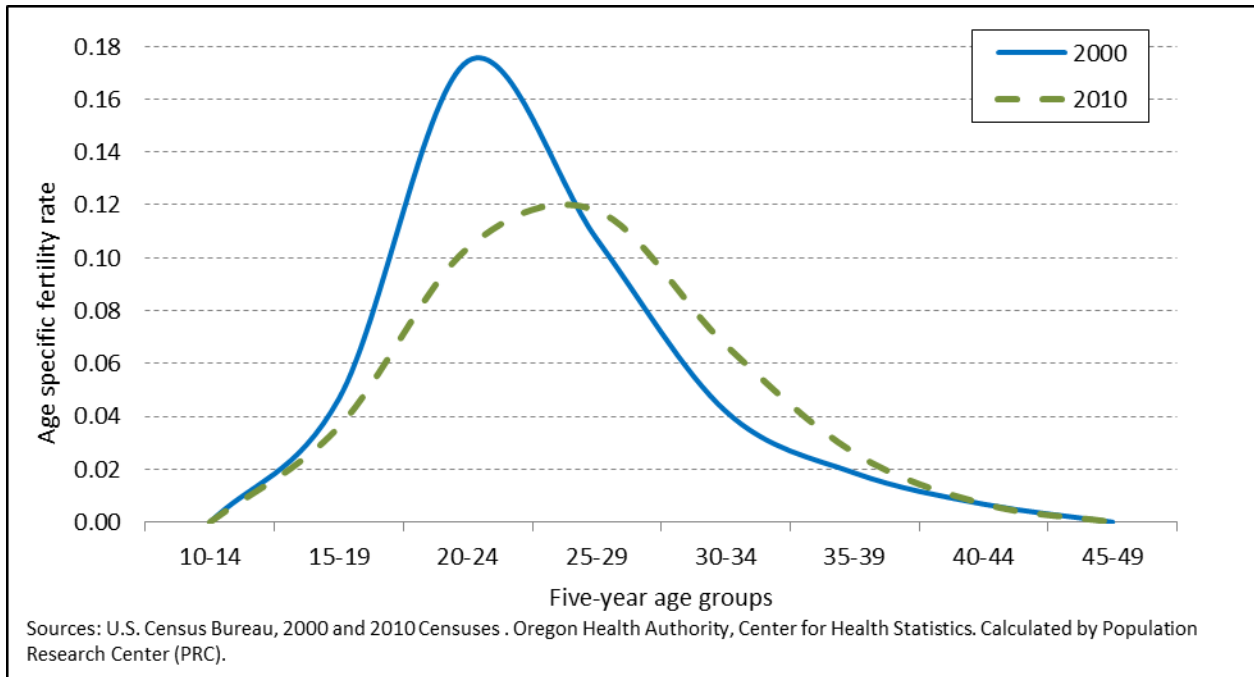


Figure 8. Oregon—Age Specific Fertility Rate (2000 and 2010)

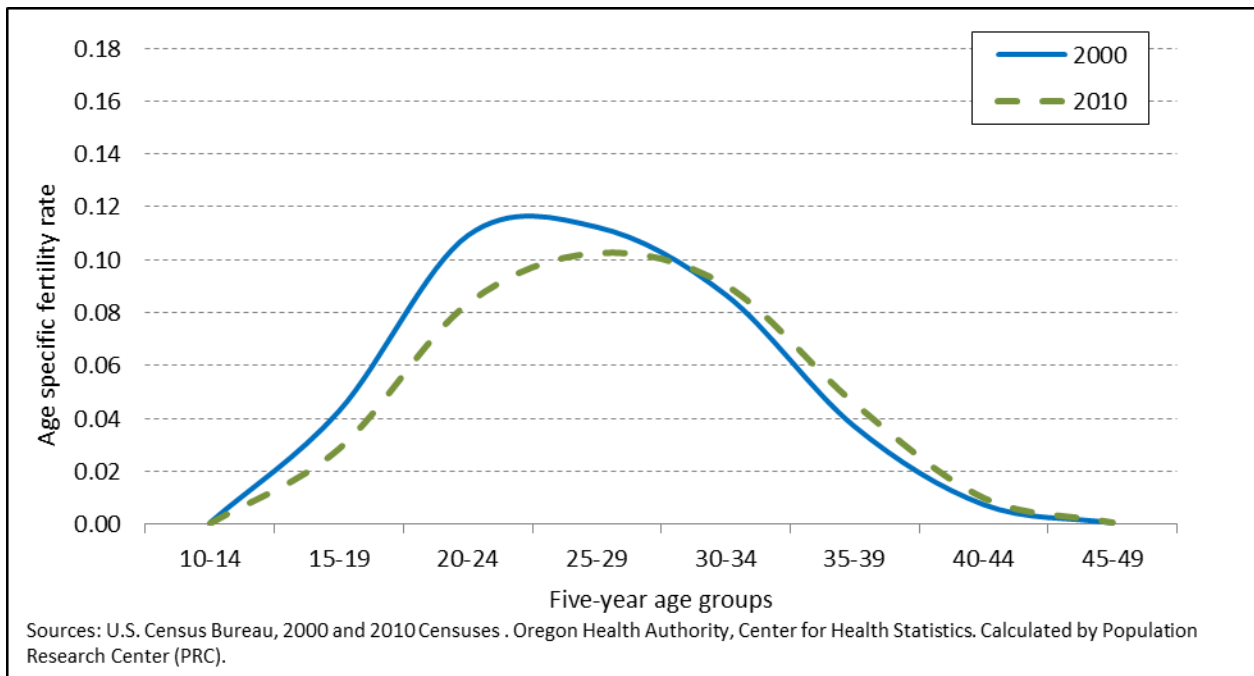


Figure 9 shows the number of births by the area in which the mother resides. Please note that the number of births fluctuates from year to year. For example a sub-area with an increase in births

between two years could easily show a decrease for a different time period; however for the 10-year period from 2000 to 2010 the county as well as both of its sub-areas saw a decrease in births (Figure 9).

Figure 9. Crook County and Sub-Areas—Total Births (2000 and 2010)

	2000	2010	Absolute Change	Relative Change	Share of County 2000	Share of County 2010
<i>Crook County</i>	214	181	-33	-15.4%	100.0%	100.0%
Prineville ¹	144	121	-23	-16.2%	67.4%	66.9%
Outside UGB	70	60	-10	-13.9%	32.6%	33.1%

Source: Oregon Health Authority, Center for Health Statistics. Aggregated by Population Research Center (PRC).

¹ For simplicity the Prineville UGB is referred to by its primary city's name.

Deaths

While the population in the county as a whole is aging, more people are living longer. For Crook County in 2000, life expectancy for males was 75 years and for females was 76 years. By 2010, life expectancy had increased to 78 for males and 81 for females. For both Crook County and Oregon, the survival rates changed little between 2000 and 2010—underscoring the fact that mortality is the most stable component of population change. Even so, the total number of countywide deaths increased (Figure 10).

Figure 10. Crook County and Sub-Areas—Total Deaths (2000 and 2010)

	2000	2010	Absolute Change	Relative Change
<i>Crook County</i>	205	232	27	13.2%

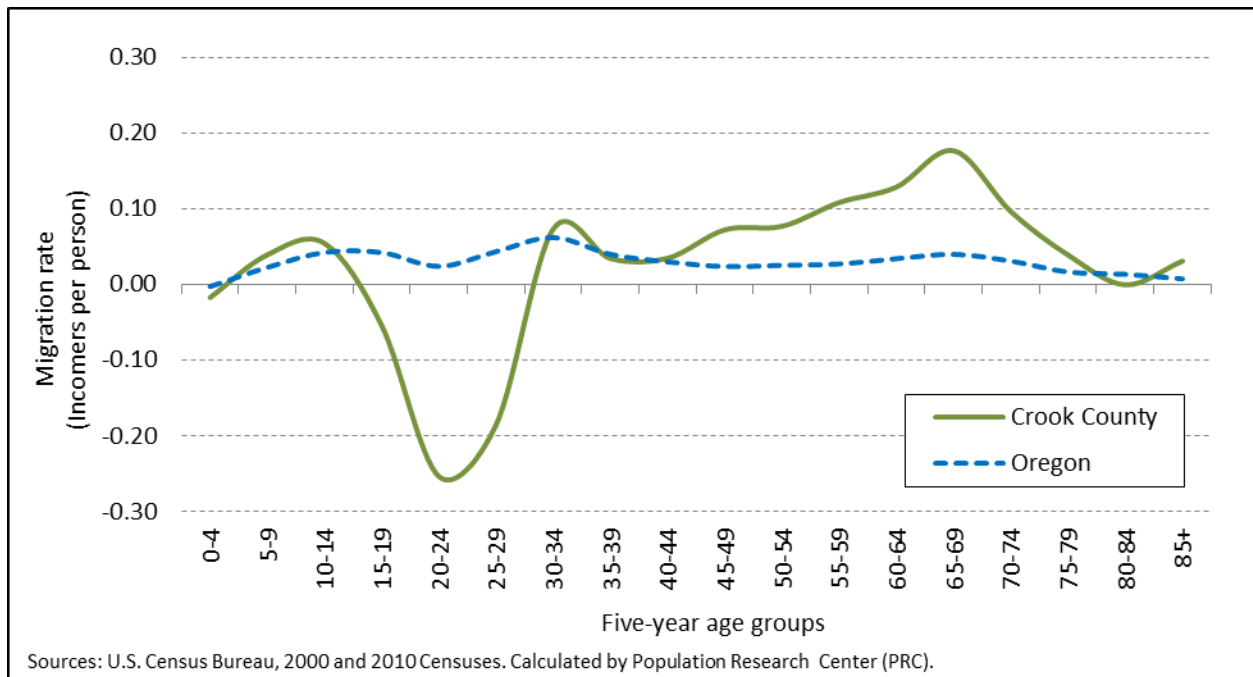
Source: Oregon Health Authority, Center for Health Statistics. Aggregated by Population Research Center (PRC).

Migration

The propensity to migrate is strongly linked to age and stage of life. As such, age-specific migration rates are critically important for assessing these patterns across five-year age cohorts. Figure 11 shows the historical age-specific migration rates by five-year age group, both for Crook County and Oregon. The migration rate is shown as the number of net migrants per person by age group.

From 2000 to 2010, younger individuals (ages with the highest mobility levels) moved out of the county in search of employment and education opportunities, as well as military service. At the same time however, the county attracted a substantial number of older migrants—likely moving into the county to retire or moving closer to family members or to senior care facilities.

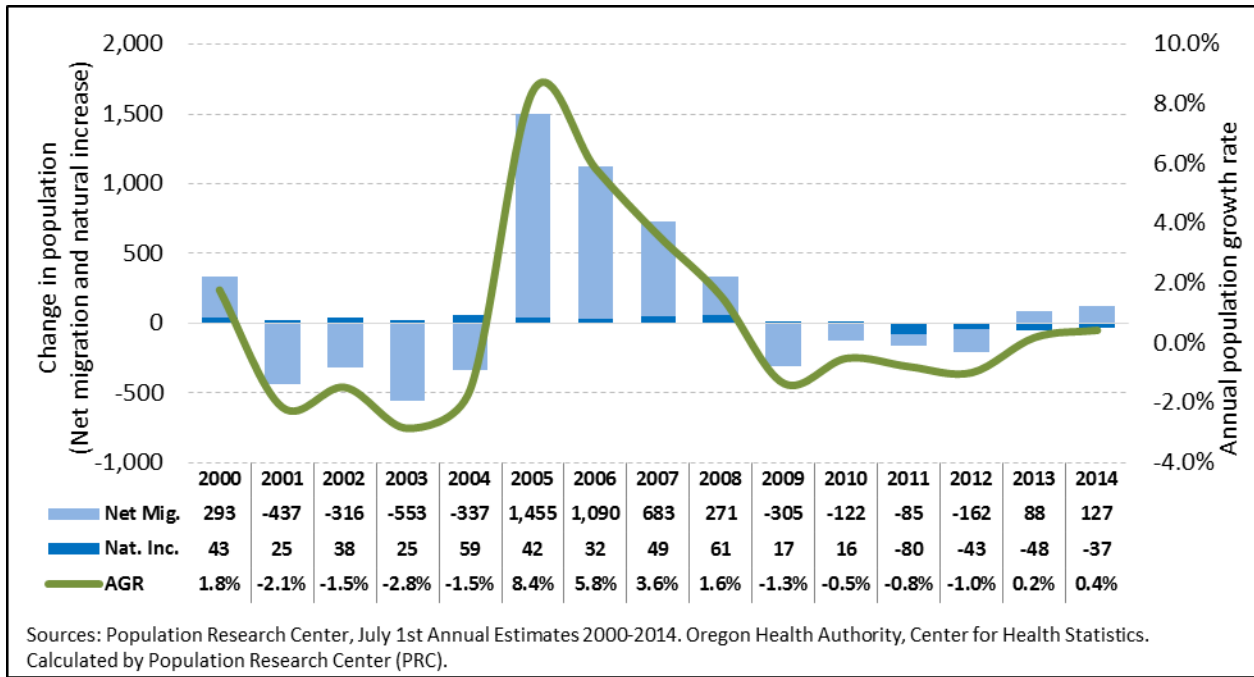
Figure 11. Crook County and Oregon—Five-year Migration Rates (2000-2010)



Historical Trends in Components of Population Change

In summary, Crook County’s fluctuating population growth in the 2000s was the direct result of substantial swings in net migration (Figure 12). Meanwhile an aging population not only led to an increase in deaths, but also resulted in a smaller proportion of women in their childbearing years. This along with more women choosing to have fewer children and have them at older ages has led to a decline in the number of births. The growing number of deaths and shrinking number of births led to natural decrease—more deaths than births—beginning in 2011. While net in-migration and natural increase contributed to substantial population growth from 2005 to 2008, both these numbers shrank during more recent years—leading to population decline between 2009 and 2012.

Figure 12. Crook County—Components of Population Change (2000-2014)



Assumptions for Future Population Change

Evaluating past demographic trends provides clues about what the future will look like, and helps determine the most likely scenarios for population change. Past trends also explain the dynamics of population growth specific to local areas. Relating recent and historical population change to events that influence population change serves as a gauge for what might realistically occur in a given area over the long-term.

Assumptions about fertility, mortality, and migration were developed for Crook County's population forecast as well as the forecasts for larger sub-areas². The assumptions are derived from observations based on life course events, as well as trends unique to Crook County and its larger sub-areas. The forecast period is 2015-2065.

Assumptions for the County and Larger Sub-Areas

During the forecast period, as the population in Crook County is expected to continue to age, fertility rates will continue to decline. Total fertility in Crook County is forecast to decrease, although only marginally, from a little more than 1.8 children per woman in 2015 to a little less than 1.8 children per woman by 2065. Similar patterns of declining total fertility are expected within the county's larger sub-areas.

Changes in mortality and life expectancy are more stable compared to fertility and migration. One influential factor affecting mortality and life expectancy is advances in medical technology. The county and larger sub-areas are projected to follow the statewide trend of increasing life expectancy throughout the forecast period—progressing from a life expectancy of 80 years in 2010 to 87 in 2060. However in spite of increasing life expectancy and the corresponding increase in survival rates, Crook County's aging population is expected to result in an overall increase in the number of deaths throughout the forecast period. Larger sub-areas within the county are expected to experience a similar increase in deaths as their population ages.

Migration is the most volatile and challenging demographic component to forecast due to the many factors influencing migration patterns. Economic, social, and environmental factors—such as employment, educational opportunities, housing availability, family ties, cultural affinity, climate change, and natural amenities—occurring both inside and outside the study area can affect both directionality and volume of migration. Net migration rates are expected to change in line with historical trends unique to Crook County. Net out-migration of younger persons and net in-migration of older individuals are assumed to persist throughout the forecast period. Countywide, average annual net migration is expected to increase from 44 net in-migrants in 2015 to 295 net in-migrants in 2035. Over the last 30 years of the forecast period, average annual net migration is expected to be steadier, increasing to 314 net in-migrants by 2065. With natural increase diminishing in its potential to

² County sub-areas with populations greater than 8,000 in the forecast launch year were forecast using the [cohort-component method](#). County sub-areas with populations less than 8,000 in forecast launch year were forecast using the [housing-unit method](#). Crook County had no sub-areas with populations less than 8,000 in forecast launch year. See Glossary of Key Terms at the end of this report for a brief description of these methods or refer to the [Methods](#) document for a more detailed description of these forecasting techniques.

contribute to population growth, net in-migration will become an increasingly important component of population growth.

Supporting Information and Specific Assumptions

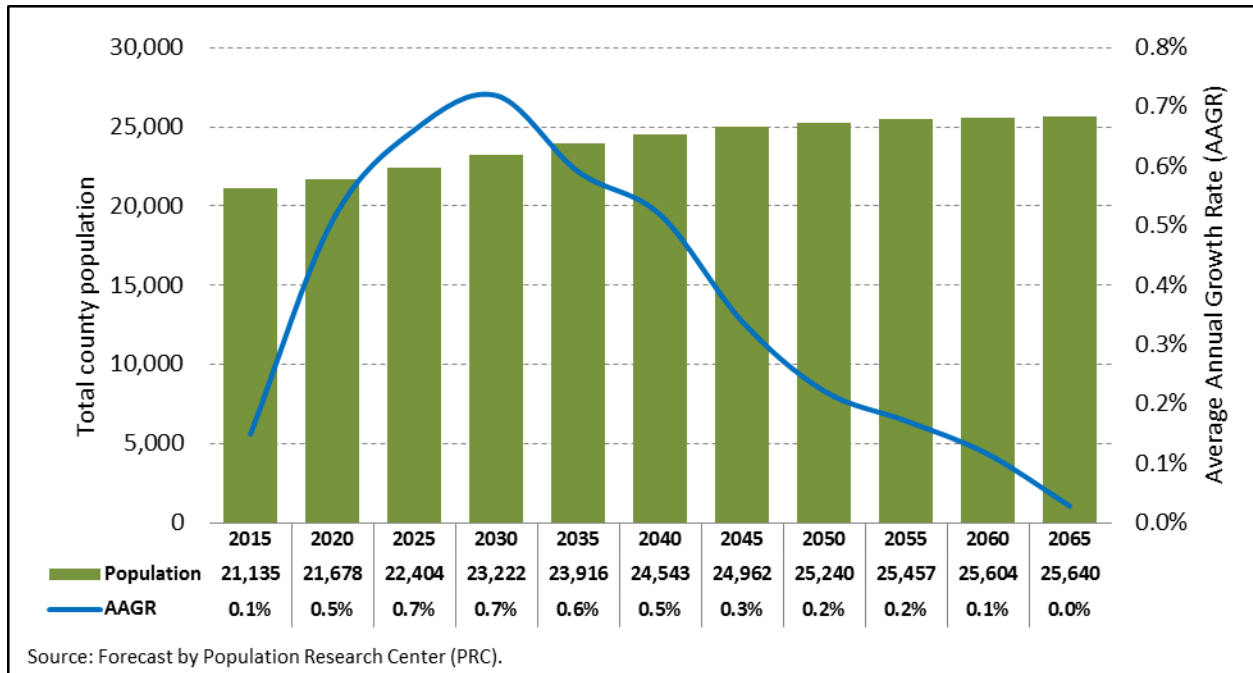
Assumptions used for developing population forecasts are partially derived from surveys and other information provided by local planners and agencies. See [Appendix A](#) for a summary of all submitted surveys and other information that was directly considered in developing the sub-area forecasts. Also, see [Appendix B](#) for specific assumptions used in each sub-area forecast.

Forecast Trends

Under the most-likely population growth scenario in Crook County, countywide and sub-area populations are expected to increase over the forecast period. The countywide population growth rate is forecasted to peak in 2030 and then slowly decline throughout the forecast period. Forecasting tapered population growth is largely driven by an aging population, which is expected to contribute to an increase in deaths, as well as a decrease in births—fewer women within child bearing years ages 10 to 49. The aging population is expected to contribute to growing natural decrease over the forecast period. Net migration is expected to remain relatively steady throughout the forecast period, barely offsetting the declining natural increase. The combination of these factors will likely result in a slowly declining population growth rate as time progresses through the forecast period.

Crook County’s total population is forecast to grow by a little more than 4,500 persons (21 percent) from 2015 to 2065, which translates into a total countywide population of 25,640 in 2065 (Figure 13). The population is forecast to grow at the highest rate—approximately 0.6 percent per year—in the near-term (2015-2030). This anticipated population growth in the near-term is based on two core assumptions: 1) Crook County’s economy will continue to strengthen in the near-term, and; 2) an increasing number of Baby Boomers will retire to the county. The single largest component of growth in this initial period is net in-migration. More than 2,100 net in-migrants are forecast for the 2015 to 2030 period.

Figure 13. Crook County—Total Forecast Population by Five-year Intervals (2015-2065)



Crook County’s only UGB, Prineville, is forecast to see population growth of nearly 1,600 from 2015 to 2035 (Figure 14) but is expected to grow at a much slower rate during the second half of the forecast

period, only adding a little more than 500 people from 2035 to 2065. The Prineville UGB is expected to decline as a share of total county population over the forecast period.

Population outside the UGB is forecast to grow by nearly 1,200 people from 2015 to 2035, but is expected to grow at a slower rate during the second half of the forecast period, adding about the same amount of people (1,200) from 2035 to 2065. The population of the area outside the UGB is forecast to increase as a share of total countywide population over the forecast period, composing 47 percent of the countywide population in 2015 and about 48 percent in 2065.

Figure 14. Crook County and Larger Sub-Areas—Forecast Population and AAGR

	2015	2035	2065	AAGR (2015-2035)	AAGR (2035-2065)	Share of County 2015	Share of County 2035	Share of County 2065
<i>Crook County</i>	21,135	23,916	25,640	0.6%	0.2%	100.0%	100.0%	100.0%
Prineville ¹	11,256	12,845	13,383	0.7%	0.1%	53.3%	53.7%	52.2%
Outside UGBs	9,879	11,071	12,257	0.6%	0.3%	46.7%	46.3%	47.8%

Source: Forecast by Population Research Center (PRC)

¹ For simplicity Prineville UGB is referred to by its primary city's name.

The Prineville UGB is expected to capture the largest share of total countywide population growth during the first 20 years of the forecast period (Figure 17); however as population growth decelerates in Prineville the area outside the UGB will account for the largest share of countywide population growth as time progresses through the forecast period.

Figure 15. Crook County and Larger Sub-Areas—Share of Countywide Population Growth

	2015-2035	2035-2065
<i>Crook County</i>	100.0%	100.0%
Prineville ¹	57.1%	31.2%
Outside UGBs	42.9%	68.8%

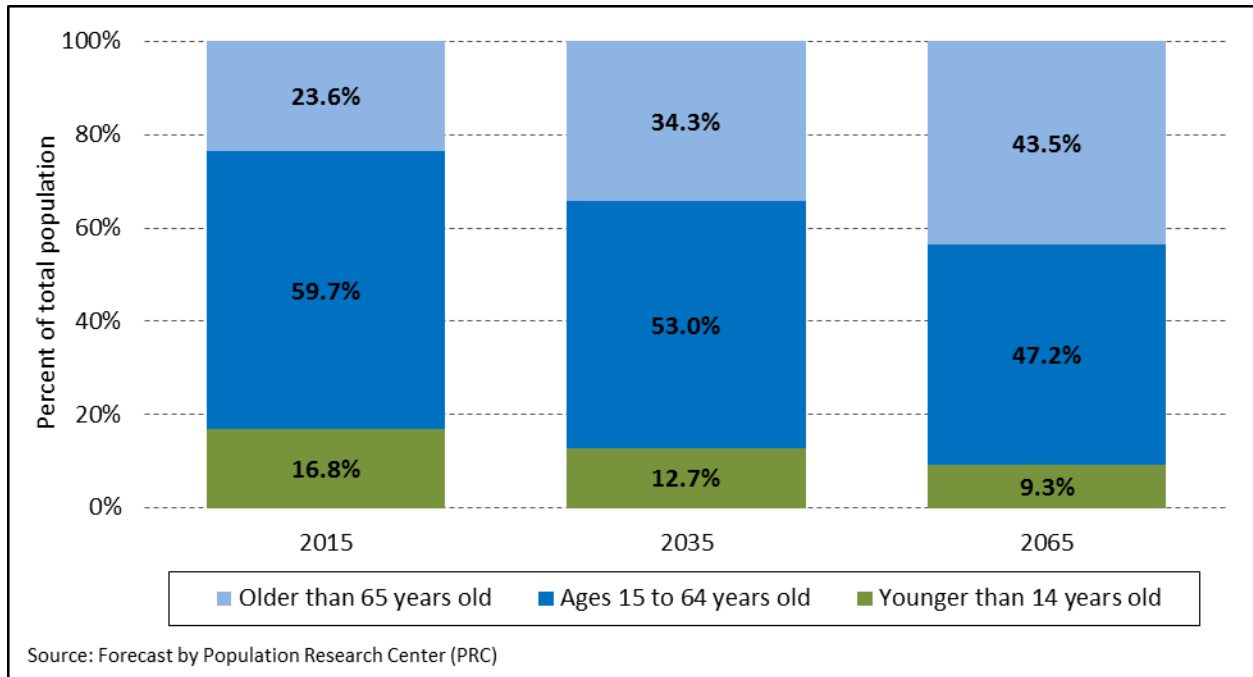
Source: Forecast by Population Research Center (PRC)

¹ For simplicity Prineville UGB is referred to by its primary city's name.

Forecast Trends in Components of Population Change

As previously discussed, a key factor in both declining births and increasing deaths is Crook County's aging population. From 2015 to 2035 the proportion of county population 65 or older is expected to grow from a little less than 24 percent to more than 34 percent. By 2065 about 44 percent of the total population is forecast to be 65 or older (Figure 16). For a more detailed look at the age structure of Crook County's population see the final forecast table published to the forecast program website (<http://www.pdx.edu/prc/opfp>).

Figure 16. Crook County—Age Structure of the Population (2015, 2035, and 2065)

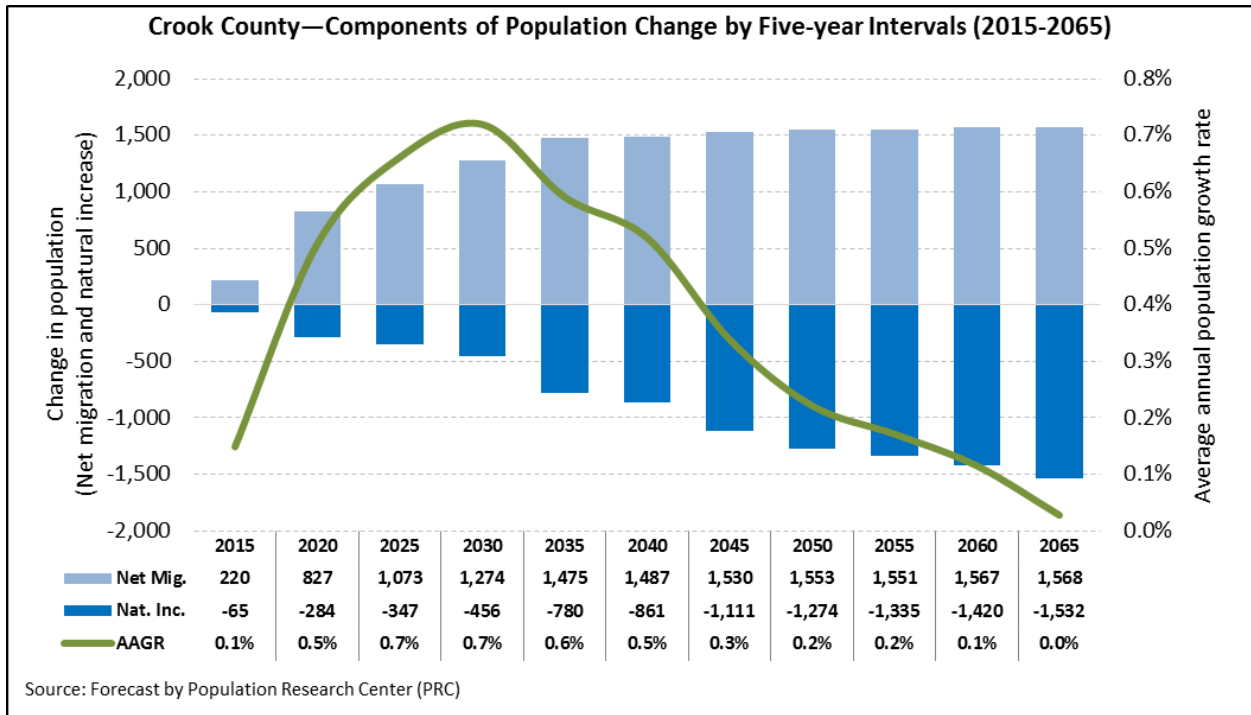


As the countywide population ages—contributing to a slow-growing population of women in their years of peak fertility—and more women choose to have fewer children and have them at an older age, average annual births are expected to decline, although slowly, over the forecast period; this combined with the rising number of deaths, will lead to a natural decrease (Figure 17). The total number of deaths countywide is expected to increase more rapidly in the near-term, followed by slower growth during the later years of the forecast period. This pattern of initial growth in the number of deaths is explained by the relative size and aging patterns of the Baby Boom and Baby Boom Echo generations. For example, in Crook County, deaths are forecast to begin to increase significantly during the 2030-2040 period as Baby Boomers age out and increase more rapidly again in the 2045-2055 period as children of Baby Boomers (i.e., Baby Boom Echo) succumb to the effects of aging.

As the increase in the numbers of deaths outpaces births, population growth in Crook County will become increasingly reliant on net in-migration; and in fact positive net in-migration is expected to persist throughout the forecast period. The majority of these net in-migrants are expected to be middle-aged and older individuals.

In summary, growing natural decrease and steady net in-migration will result in population growth reaching its peak in 2030 and then tapering through the remainder of the forecast period (Figure 17). An aging population is not only expected to lead to an increase in deaths, but a smaller proportion of women in their childbearing years will likely result in a long-term decline in births. Net migration is expected to remain relatively steady throughout the forecast period, and therefore offset the decline in natural increase.

Figure 17. Crook County—Components of Population Change, 2015-2065



Glossary of Key Terms

Cohort-Component Method: A method used to forecast future populations based on changes in births, deaths, and migration over time.

Coordinated population forecast: A population forecast prepared for the county along with population forecasts for its city urban growth boundary (UGB) areas and non-UGB area.

Housing unit: A house, apartment, mobile home or trailer, group of rooms, or single room that is occupied or is intended for occupancy.

Housing-Unit Method: A method used to forecast future populations based on changes in housing unit counts, vacancy rates, the average numbers of persons per household (PPH), and group quarter population counts.

Occupancy rate: The proportion of total housing units that are occupied by an individual or group of persons.

Persons per household (PPH): The average household size (i.e., the average number of persons per occupied housing unit for a particular geographic area).

Replacement Level Fertility: The average number of children each woman needs to bear in order to replace the population (to replace each male and female) under current mortality conditions in the U.S. This is commonly estimated to be 2.1 children per woman.

Appendix A: Supporting Information

Supporting information is based on planning documents and reports, and from submittals to PRC from city officials and staff, and other stakeholders. The information pertains to characteristics of each city area, and to changes thought to occur in the future. Crook County did not submit a survey response.

Prineville—Crook County						
Observations about Population Composition (e.g. about children, the elderly, racial ethnic groups)	Observations about Housing (including vacancy rates)	Planned Housing Development /Est. Year Completion	Future Group Quarters Facilities	Future Employers	Infrastructure	Promotions (Promos) and Hindrances (Hinders) to Population and Housing Growth; Other notes
<p>** GIS counted.</p> <p>4,090 total residential addresses in City Limits.</p> <p>57.1% owner occupied.</p> <p>PPH – 2.57 (City Comprehensive Plan)</p> <p>Owner occupied vacancy rate less than 1%</p> <p>42.9% tenant occupied.</p> <p>PPH - 2.51 (City Comprehensive Plan)</p> <p>Tenant occupied vacancy rate less than 2%</p>	<p>Owner occupied housing vacancy rate less than 1%.</p> <p>Tenant occupied housing vacancy rate less than 2%.</p>		Facebook and Apple.			<p>Promos:</p> <p>Hinders:</p>

Prineville—Crook County

<p>Current City calculated population – 10,483 persons</p> <p>** GIS counted.</p> <p>4,937 residential addresses in City Limits plus UGB.</p> <p>57.1% owner occupied.</p> <p>PPH – 2.57</p> <p>Owner occupied vacancy rate less than 1%</p> <p>42.9% tenant occupied.</p> <p>PPH - 2.51</p> <p>Tenant occupied vacancy rate less than 2%</p> <p>Current City Limits plus UGB calculated population – 12,384 persons</p>						
<p>Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies</p>						
<p>Other information (e.g. planning documents, email correspondence, housing development survey)</p>						

Appendix B: Specific Assumptions

Prineville

The total fertility rate (TFR) is assumed to decline over the forecast period—although more slowly than it has historically—from a rate slightly higher than observed in 2010. Survival rates for 2060 are assumed to be a little below those forecast for the county as a whole. Prineville has historically had slightly lower survival rates than observed countywide; this corresponds with a slightly shorter life expectancy. Age-specific net migration rates are assumed to generally follow county historical patterns, but will remain at slightly higher rates over the forecast period.

Outside UGBs

The total fertility rate (TFR) is assumed to decline over the forecast period—although more slowly than it has historically—from a rate slightly higher than observed in 2010. Survival rates for 2060 are assumed to be about the same as those forecast for the county as a whole. Age-specific net migration rates are assumed to generally follow county historical patterns, but will remain at slightly higher rates over the forecast period.

Appendix C: Detailed Population Forecast Results

Figure 18. Crook County—Population by Five-Year Age Group

Age Group	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
00-04	983	935	937	929	919	886	839	794	762	736	708
05-09	1,206	1,085	1,046	1,024	1,001	986	950	900	854	821	791
10-14	1,357	1,355	1,235	1,164	1,124	1,094	1,077	1,039	986	938	899
15-19	1,315	1,372	1,395	1,240	1,151	1,106	1,076	1,061	1,025	976	925
20-24	697	793	844	889	785	725	696	679	671	651	617
25-29	886	725	836	910	956	841	777	747	730	723	700
30-34	1,038	984	815	961	1,041	1,091	960	888	856	838	828
35-39	1,176	1,103	1,063	901	1,058	1,144	1,198	1,057	980	947	926
40-44	1,150	1,256	1,198	1,180	996	1,167	1,261	1,324	1,169	1,087	1,048
45-49	1,218	1,260	1,398	1,362	1,338	1,127	1,321	1,432	1,507	1,335	1,239
50-54	1,515	1,346	1,409	1,596	1,551	1,520	1,281	1,506	1,636	1,727	1,528
55-59	1,769	1,701	1,535	1,642	1,855	1,800	1,766	1,493	1,760	1,919	2,023
60-64	1,843	2,014	1,957	1,803	1,924	2,173	2,110	2,079	1,763	2,087	2,275
65-69	1,929	2,142	2,378	2,362	2,173	2,320	2,623	2,556	2,531	2,157	2,555
70-74	1,307	1,662	1,915	2,193	2,287	2,125	2,280	2,591	2,537	2,527	2,153
75-79	848	1,006	1,334	1,590	1,803	2,026	1,876	2,046	2,343	2,312	2,304
80-84	507	575	712	981	1,240	1,429	1,616	1,508	1,660	1,915	1,892
85+	389	364	396	495	714	983	1,256	1,542	1,688	1,909	2,231
<i>Total</i>	<i>21,135</i>	<i>21,678</i>	<i>22,404</i>	<i>23,222</i>	<i>23,916</i>	<i>24,543</i>	<i>24,962</i>	<i>25,240</i>	<i>25,457</i>	<i>25,604</i>	<i>25,640</i>

Figure 19. Crook County's Sub-Areas—Total Population

	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
Prineville UGB	11,256	11,533	11,935	12,416	12,845	13,238	13,472	13,569	13,593	13,536	13,383
Outside UGBs	9,879	10,145	10,470	10,806	11,071	11,305	11,489	11,671	11,864	12,068	12,257

Photo Credit: Chimney Rock area formations along the Crooked River south of Prineville.
(Photo No. croDA0077) Gary Halvorson, Oregon State Archives
<http://www.sos.state.or.us/archives/pages/records/local/county/scenic/crook/43.html>